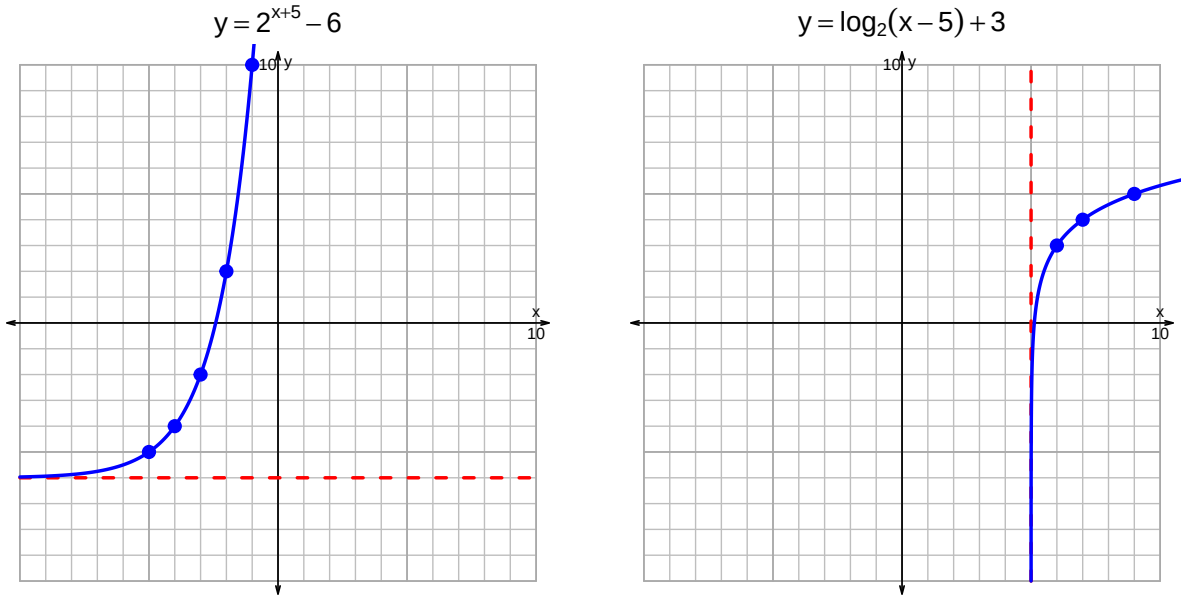
Name: Date:

S18QUIZ: EXP LOG (SLTN v280)

1. Graph $y = 2^{x+5} - 6$ and $y = \log_2(x-5) + 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$11 = \left(\frac{4}{3}\right) \cdot 10^{5t/7}$$

Divide both sides by $\frac{4}{3}$.

$$\frac{11 \cdot 3}{4} = 10^{5t/7}$$

Take log, base 10, of both sides.

$$\log_{10}\left(\frac{11 \cdot 3}{4}\right) = \frac{5t}{7}$$

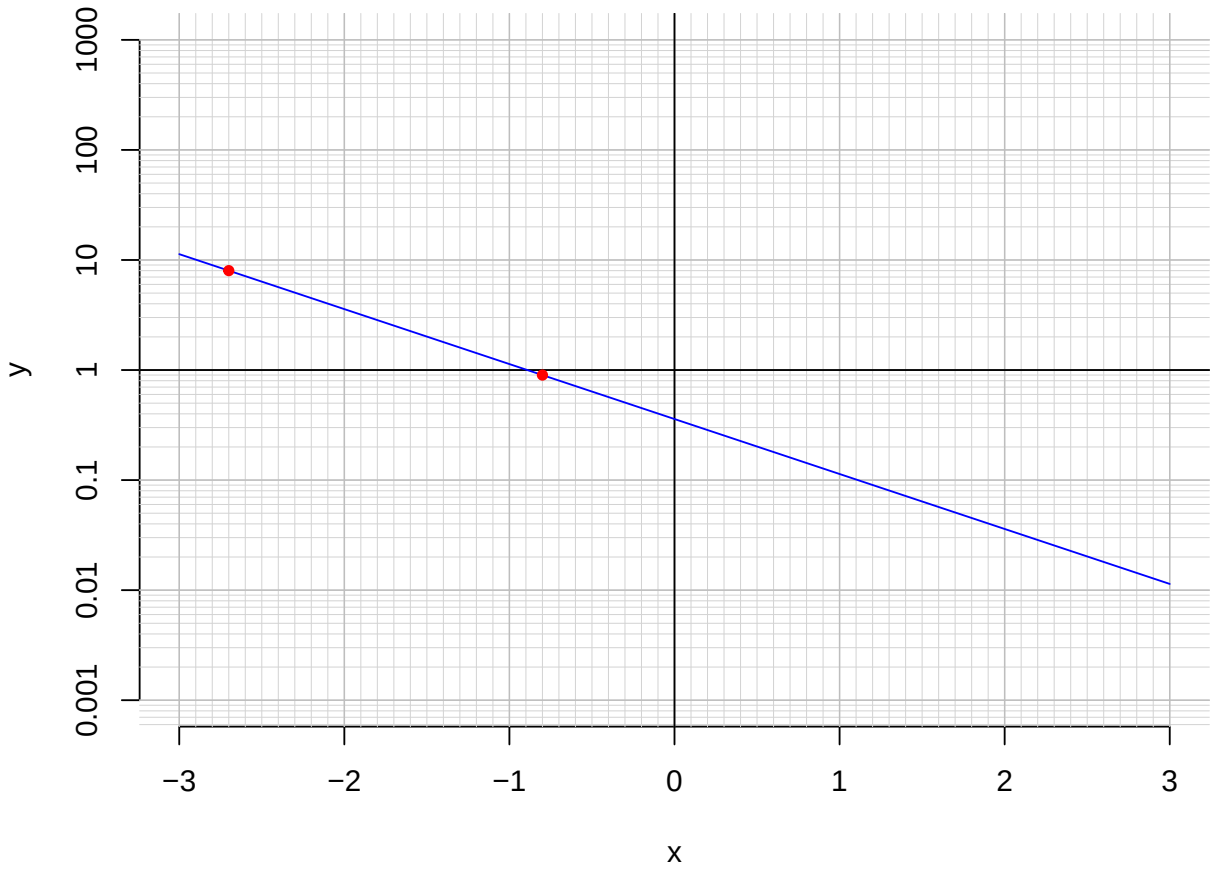
Divide both sides by $\frac{5}{7}$.

$$\frac{7}{5} \cdot \log_{10}\left(\frac{11 \cdot 3}{4}\right) = t$$

Switch sides.

$$t = \frac{7}{5} \cdot \log_{10}\left(\frac{11 \cdot 3}{4}\right)$$

3. An exponential function $f(x) = 0.359 \cdot e^{-1.15x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(-0.8)$.

$$f(-0.8) = 0.9$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{1.15} \cdot \ln\left(\frac{x}{0.359}\right)$$

c. Using the plot above, evaluate $f^{-1}(8)$.

$$f^{-1}(8) = -2.7$$